

We claim:

1. A method of automatically detecting and correcting communication errors which result in an electronic shelf label's (ESL's) registers storing incorrect data, the method comprising the steps of:

- (a) transmitting a message to the ESL by a host computer;
- (b) waiting for a response to the message;
- (c) if the response is a negative acknowledgement or no response is received by the host computer, retransmitting the message;
- (d) if the response appears to be a positive acknowledgement, transmitting a verification message to verify the contents of the ESL's registers;
- (e) waiting for a response to the verification message; and
- (f) if the response to the verification message is positive acknowledgement, logging the message as successfully received.

2. The method of claim 1 further comprising the step of:

- (g) if the response to the verification message is a negative acknowledgement or no response is received by the host computer, retransmitting the message.

3. The method of claim 2 further comprising the step of:

- (h) if the response to the retransmitted message is a negative acknowledgement or no response is received by the host computer, providing an indication of a communication problem.

4. The method of claim 1 wherein the message is a command to update at least one of the ESL's registers.

5. The method of claim 1 wherein the verification message is a data bedcheck message.

6. The method of claim 1 wherein the step of transmitting a verification message immediately follows the receipt of the positive acknowledgement.

7. An electronic shelf label (ESL) system comprising:
an ESL for displaying information relating to an item associated with the ESL, the ESL including a plurality of registers for storing information controlling the content and formatting of the information displayed; and

a host computer system transmitting a message to the ESL, waiting for a response to the message, retransmitting the message if the response is a negative acknowledgement or no response is received, and transmitting a verification message to verify the contents of the ESL's registers if the response appears to be a positive acknowledgement.

8. The system of claim 7 wherein the host computer waits for a response to the verification message, and if the response to the verification message is positive acknowledgement, logging the message as successfully received.

9. The system of claim 7 wherein the message is a command to update at least one of the ESL's registers.

10. The system of claim 7 wherein the verification message is a data bedcheck message.

11. The system of claim 7 wherein host computer transmits the verification message immediately following the receipt of the positive acknowledgement.

12. A method of automatically detecting and correcting communication errors which result in an electronic shelf label's (ESL's) registers storing incorrect data, the method comprising the steps of:

- (a) transmitting a message containing data to be stored in one or more registers of the ESL by a host computer;
- (b) waiting for a response to the message;
- (c) if the response is a negative acknowledgement that the data was not correctly stored or no response is received by the host computer, retransmitting the message;
- (d) if the response appears to be a positive acknowledgement that the message was received and the data correctly stored, transmitting a verification message to verify the contents of the ESL's registers;
- (e) waiting for a response to the verification message; and
- (f) if the response to the verification message is positive acknowledgement verifying that the ESL's registers contained the expected data, logging the message as successfully received.

13. The method of claim 12 further comprising the step of:

- (g) if the response to the verification message is a negative acknowledgement or no response is received by the host computer, retransmitting the message.

14. The method of claim 13 further comprising the step of:

- (h) if the response to the retransmitted message is a negative acknowledgement or no response is received by the host computer, providing an indication of a communication problem.

15. The method of claim 12 wherein the step of transmitting a verification message immediately follows the receipt of the positive acknowledgement.

16. The method of claim 13 wherein steps (a) through (g) are repeated a plurality of times and further comprising the step of:

tabulating statistical data of the number of times the response was a negative acknowledgement or no response was received; and

providing an error indication of the number exceeds a threshold.

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